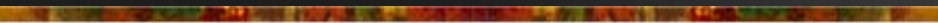





CENTEK INDUSTRIES, INC.


John R. Ford

Engineering and Technical Service




Centek has in the past developed or assisted in developing exhaust configurations which have been very effective in reducing CO levels on various boats. I think it would be helpful to us today to review those successes and the fundamental process employed to see if they can be extended to other exhaust applications.



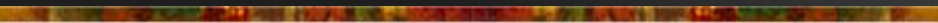


The most recent and very successful exhaust configuration was that used on generators aboard house boats. An exhaust gas cooling water separator was used. The dewatered (“dry”) exhaust gases were then routed through a vertical stack to be discharged high above the existing upper structure of the boat. I think we are all probably familiar with these type installations and the excellent results as documented after extensive testing.



Another very successful exhaust configuration was installed on the propulsion engines on a cruising vessel. Again a water separation muffler was used. In this configuration the exhaust gases were discharged underwater through specially designed skegs. The skegs were not overly large as they did not need to carry the raw water. It was dumped overboard through hull side fittings. This system resulted in significant lowering of the CO levels in the boat's cockpit in all running conditions.

A hybrid of these successful configurations might be worth consideration and further evaluation. Again a separation muffler would be employed to remove the cooling water from the exhaust gases. The cooling water would be sent over - board through hullside or transom mount fittings as before. However this time the exhaust gases could be routed through piping or conduit provided in the superstructure of the boat. Passage ways in the radar arch might be used; the object being to discharge the exhaust gases at an elevation above deck such that they are likely to be carried away by the slipstream when the boat is underway or by the wind if at anchor or moving at slow speed.



Anyone interested in more detailed information about the components needed in any of the systems that are in current use or as proposed, can contact:

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